查询301U200供应商

Bulletin I2032 rev. B 03/03

International
IOR Rectifier

301U(R) SERIES

STANDARD RECOVERY DIODES **Stud Version**

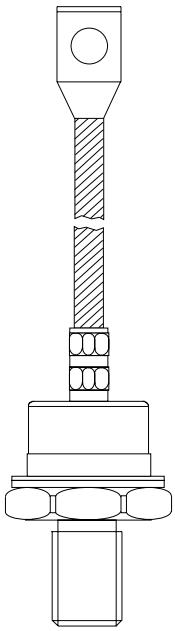
Features

- Wide current range
- High voltage ratings up to 2500V
- High surge current capabilities
- Stud cathode and stud anode version
- High resistance to acceleration

300A

Typical Applications

- Converters
- Power supplies
- Machine tool controls
- High power drives
- Medium traction applications



case style
DO-205AB (DO-9)

Major Ratings and Characteristics

Parameters		301U(R)		Units
		160 to 200	250	
$I_{F(AV)}$		330	300	A
	@ T_C	120	120	°C
$I_{F(RMS)}$		520	470	A
I_{FSM}	@ 50Hz	8250	6050	A
	@ 60Hz	8640	6335	A
I^2t	@ 50Hz	340	183	KA^2s
	@ 60Hz	311	167	KA^2s
V_{RRM} range		1600 to 2000	2500	V
T_J		- 40 to 180	- 40 to 180	°C

ELECTRICAL SPECIFICATIONS

Voltage Ratings

Type number	Voltage Code	V_{RRM} , maximum repetitive peak reverse voltage V	V_{RSM} , maximum non-repetitive peak rev. voltage V	I_{RRM} max. @ $T_J = T_J$ max. mA
301U(R)	160	1600	1700	15
	200	2000	2100	
	250	2500	2600	

Forward Conduction

Parameter		301U(R) 160 to 200	301U(R) 250	Units	Conditions		
$I_{F(AV)}$	Max. average forward current	330	300	A	180° conduction, half sine wave		
	@ Case temperature	120	120	°C			
$I_{F(RMS)}$	Max. RMS forward current	520	470	A	DC @ T_C = 115°C (up to 2000V), T_C = 102°C (2500V)		
I_{FSM}	Max. peak, one-cycle forward, non-repetitive surge current	8250	6050	A	t = 10ms	No voltage reapplied	Sinusoidal half wave, Initial $T_J = T_J$ max.
		8640	6335		t = 8.3ms		
		6940	5090		t = 10ms	100% V_{RRM} reapplied	
		7270	5330		t = 8.3ms		
I^2t	Maximum I^2t for fusing	340	183	KA^2s	t = 10ms	No voltage reapplied	
		311	167		t = 8.3ms		
		241	129		t = 10ms	100% V_{RRM} reapplied	
		220	118		t = 8.3ms		
$I^2\sqrt{t}$	Maximum $I^2\sqrt{t}$ for fusing	3400	1830	$KA^2\sqrt{s}$	t = 0.1 to 10ms, no voltage reapplied		
$V_{F(TO)1}$	Low level value of threshold voltage	0.77	0.90	V	(16.7% x π x $I_{F(AV)}$ < I < π x $I_{F(AV)}$), $T_J = T_J$ max.		
$V_{F(TO)2}$	High level value of threshold voltage	0.84	0.97		(I > π x $I_{F(AV)}$), $T_J = T_J$ max.		
r_{f1}	Low level value of forward slope resistance	0.49	0.59	mΩ	(16.7% x π x $I_{F(AV)}$ < I < π x $I_{F(AV)}$), $T_J = T_J$ max.		
r_{f2}	High level value of forward slope resistance	0.49	0.55		(I > π x $I_{F(AV)}$), $T_J = T_J$ max.		
V_{FM}	Max. forward voltage drop	1.22	1.46	V	I_{pk}= 942A, $T_J = T_J$ max, t_p = 10ms sinusoidal wave		

Thermal and Mechanical Specifications

	Parameter		301U(R)	Units	Conditions
T_J	Max. junction operating temperature range		-40 to 180	°C	
T_{stg}	Max. storage temperature range		-40 to 200		
R_{thJC}	Max. thermal resistance, junction to case		0.14	K/W	DC operation
R_{thCS}	Max. thermal resistance, case to heatsink		0.08		Mounting surface, smooth, flat and greased
T	Max. allowed mounting torque +0 -20%		37	Nm	Not lubricated threads
			28		Lubricated threads
wt	Weight	301U	250 ± 5	g	
		303U	152 ± 5		
		305U	177 ± 5		
		307U	197 ± 5		
		309U	160 ± 5		
	Case style		DO-205AB (DO-9)		See Outline Table

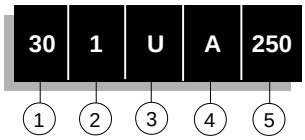
ΔR_{thJC} Conduction

(The following table shows the increment of thermal resistence R_{thJC} when devices operate at different conduction angles than DC)

Conduction angle	Sinusoidal conduction		Rectangular conduction		Units	Conditions
	80 to 200	250	00 to 200	250		
180°	0.015	0.015	0.011	0.011	K/W	$T_J = T_J$ max.
120°	0.018	0.018	0.019	0.019		
90°	0.023	0.023	0.025	0.025		
60°	0.034	0.034	0.035	0.035		
30°	0.056	0.056	0.057	0.057		

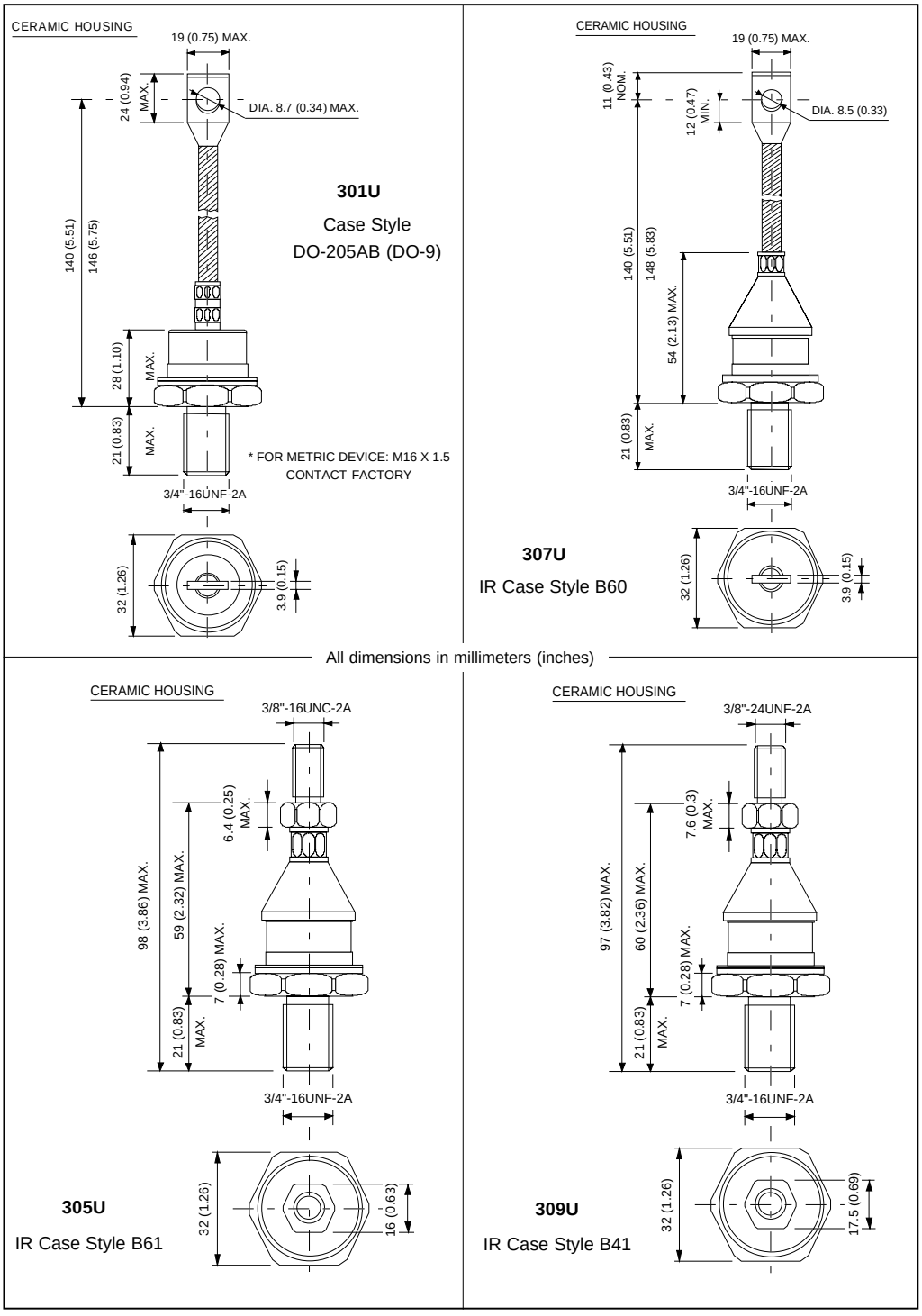
Ordering Information Table

Device Code

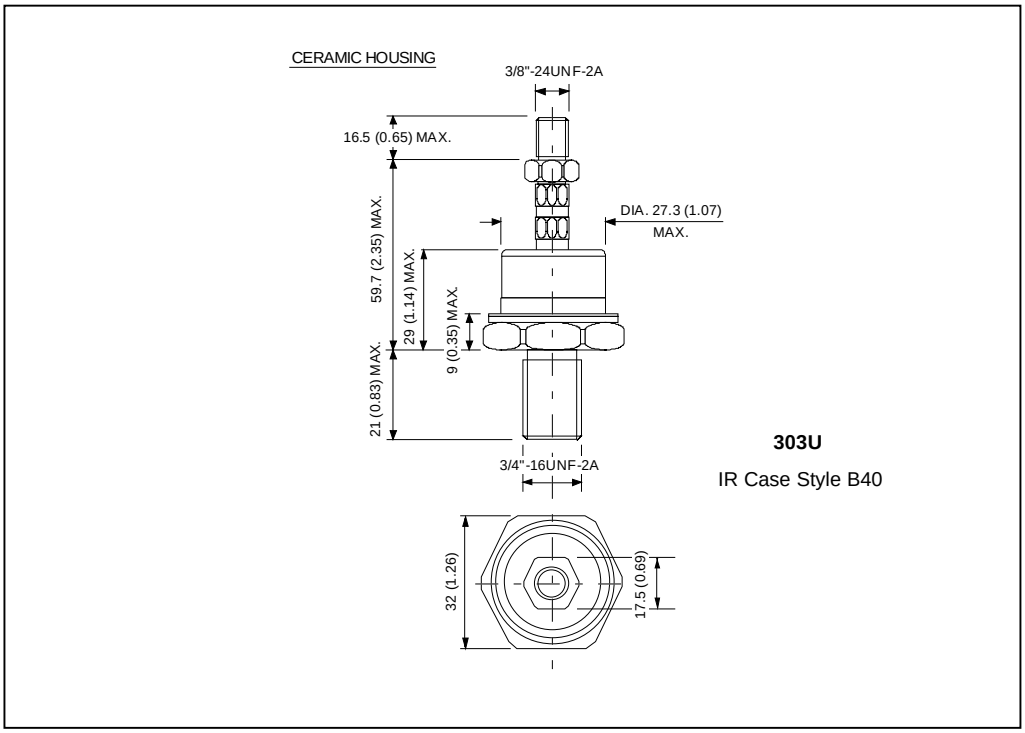


1 - 30 = Essential Part Number
2 - 1 = Standard Device
3 = Top Threaded version
5 = Type for rotating application with Top Threaded version 3/8 16UNC-2A
7 = Type for rotating application with flexible lead
9 = Type for rotating application with Top Threaded version 3/8 24UNF
3 - U = Stud Normal Polarity (Cathode to Stud)
UR = Stud Reverse Polarity (Anode to Stud)
4 - A = Max. Leakage selection I_{RRM} = 2mA T_J = 25°C
5 - Voltage code: Code x 10=V_{RRM} (See Voltage Ratings table)

Outline Table



Outline Table



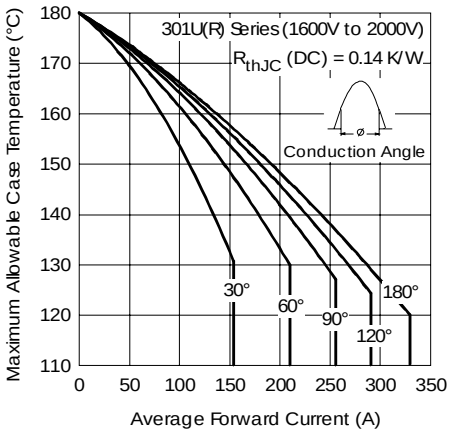


Fig. 1 - Current Ratings Characteristics

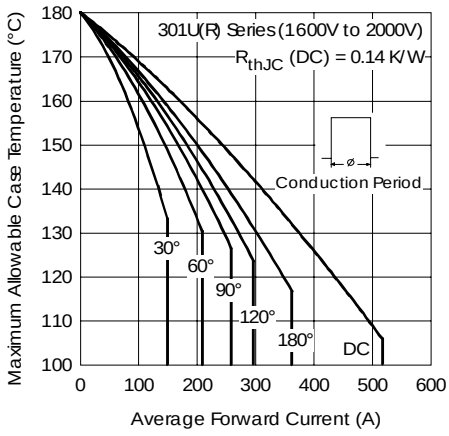


Fig.2 - Current Ratings Characteristics

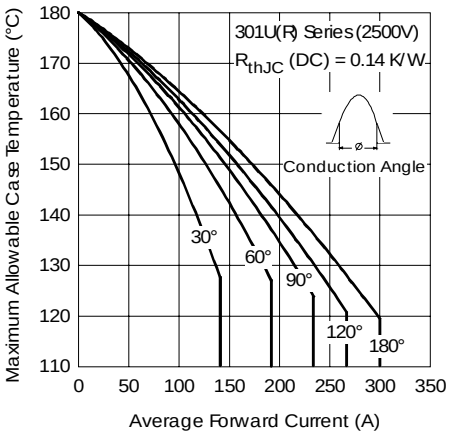


Fig. 3 - Current Ratings Characteristics

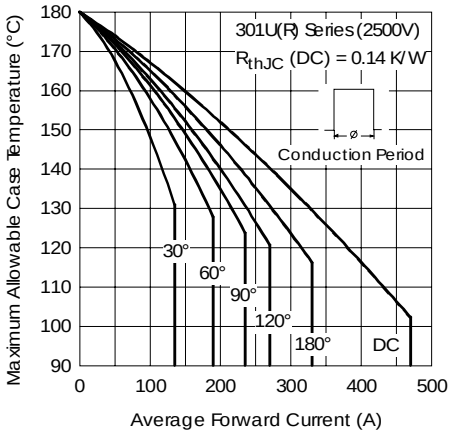


Fig. 4 - Current Ratings Characteristics

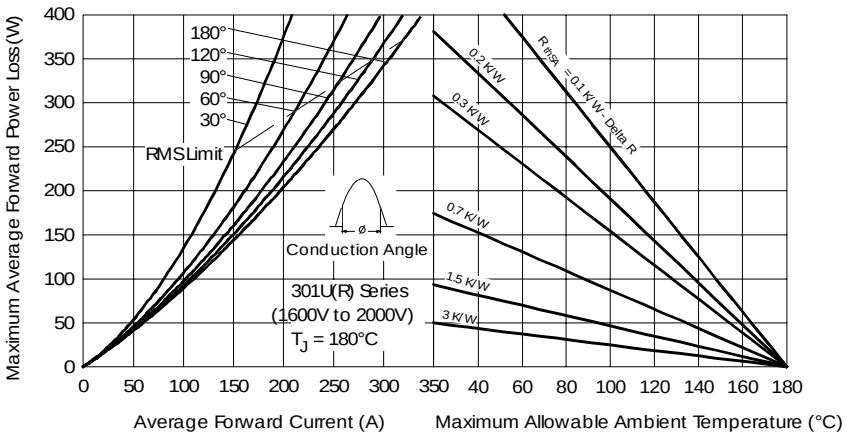


Fig. 5 - Forward Power Loss Characteristics

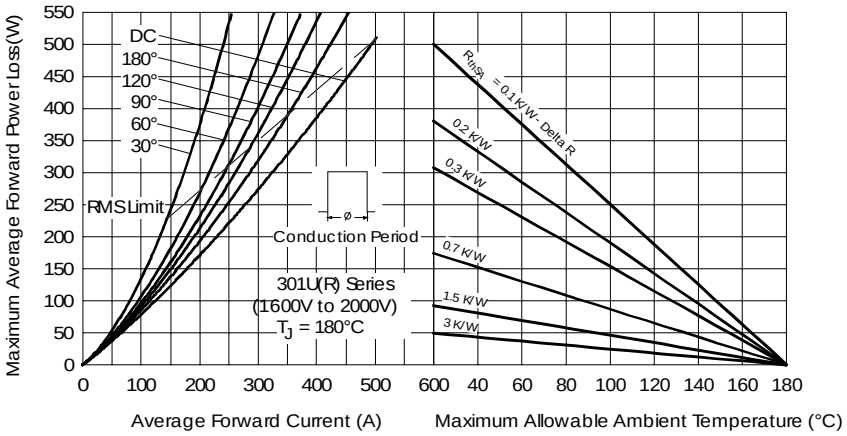


Fig. 6 - Forward Power Loss Characteristics

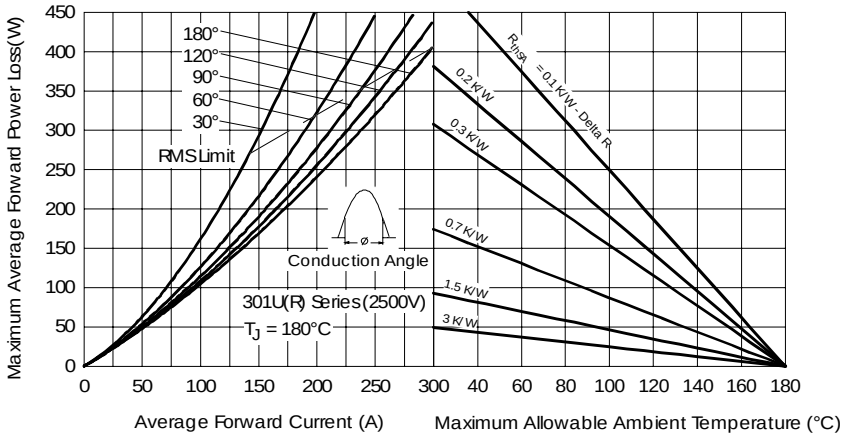


Fig. 7 - Forward Power Loss Characteristics

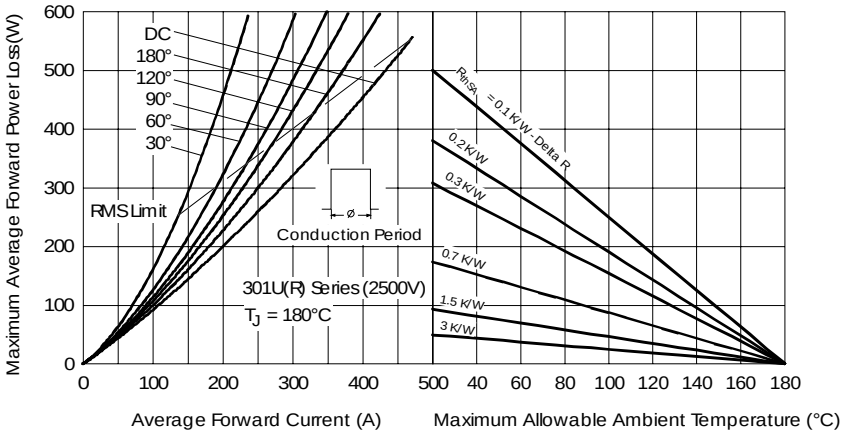


Fig. 8 - Forward Power Loss Characteristics

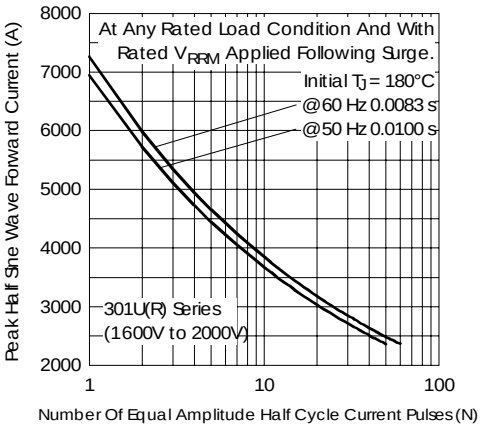

Peak Half Sine Wave Forward Current (A)
At Any Rated Load Condition And With
Rated V_{RRM} Applied Following Surge.
Initial T_J = 180°C
@60 Hz 0.0083 s
@50 Hz 0.0100 s
301U(R) Series
(1600V to 2000V)
Number Of Equal Amplitude Half Cycle Current Pulses (N)

Fig. 9 - Maximum Non-Repetitive Surge Current

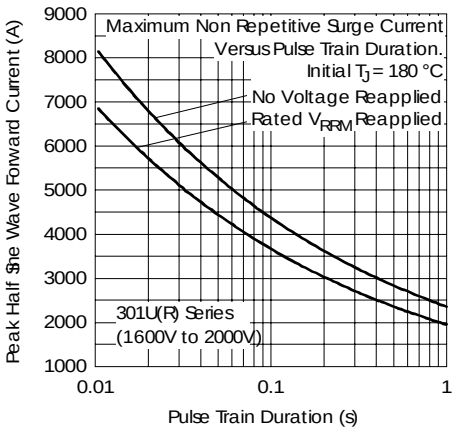

Peak Half Sine Wave Forward Current (A)
Maximum Non Repetitive Surge Current
Versus Pulse Train Duration.
Initial T_J = 180 °C
No Voltage Reapplied
Rated V_{RRM} Reapplied
301U(R) Series
(1600V to 2000V)
Pulse Train Duration (s)

Fig. 10 - Maximum Non-Repetitive Surge Current

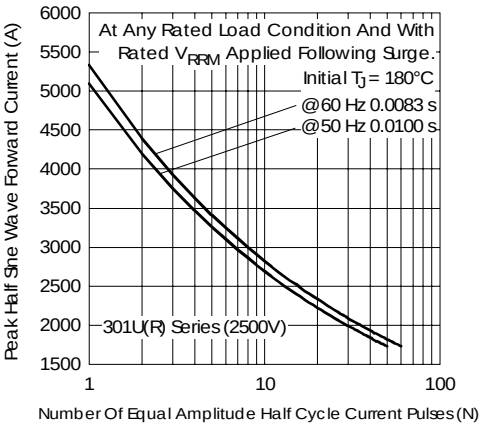


Fig. 11 - Maximum Non-Repetitive Surge Current

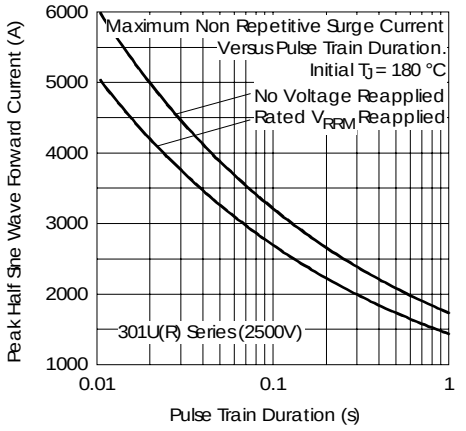


Fig. 12 - Maximum Non-Repetitive Surge Current

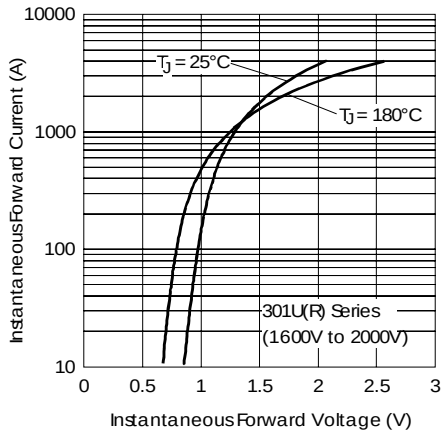


Fig. 13 - Forward Voltage Drop Characteristics

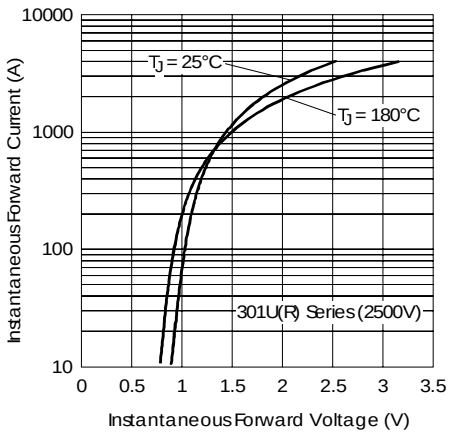


Fig. 14 - Forward Voltage Drop Characteristics

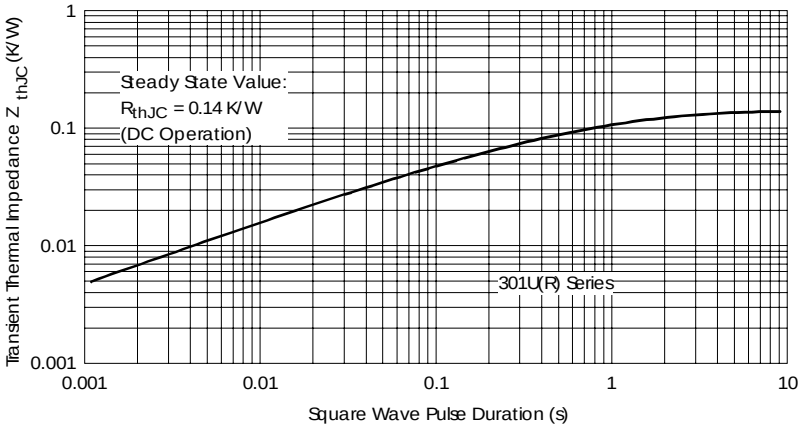


Fig. 15 - Thermal Impedance Z_{thJC} Characteristic

Data and specifications subject to change without notice.
This product has been designed and qualified for Industrial Level.
Qualification Standards can be found on IR's Web site.

International
IOR Rectifier

IR WORLD HEADQUARTERS: 233 Kansas St., El Segundo, California 90245, USA Tel: (310) 252-7105
TAC Fax: (310) 252-7309
Visit us at www.irf.com for sales contact information. 03/03